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INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

10/52744



Applicant's or agent's file reference 235	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/09552	International filing date (day/month/year) 20.08.2003	Priority date (day/month/year) 10.09.2002
International Patent Classification (IPC) or both national classification and IPC B22F1/02		
Applicant UMICORE et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 23.03.2004	Date of completion of this report 15.12.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Lilimpakis, E Telephone No. +49 89 2399-2952 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/09552**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-7 as originally filed

Claims, Numbers

1-12 as originally filed

Drawings, Sheets

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-12
	No: Claims	
Inventive step (IS)	Yes: Claims	1-7,11,12
	No: Claims	8-10
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/09552

Re Item V

Reasoned statement under Art. 35.2 with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1: PATENT ABSTRACTS OF JAPAN vol. 018, no. 632 (C-1280), 2 December 1994 (1994-12-02) -& JP 06 240381 A (KAWASAKI STEEL CORP), 30 August 1994 (1994-08-30)
D2: US-A-2 853 403 (BRYAN HAWORTH JOHN ET AL) 23 September 1958 (1958-09-23) cited in the application
D3: PATENT ABSTRACTS OF JAPAN vol. 1997, no. 02, 28 February 1997 (1997-02-28) -& JP 08 284622 A (MITSUBISHI MATERIALS CORP), 29 October 1996 (1996-10-29)
D4: WO 01 87370 A (VIDAM TECHNOLOGY LTD ;VALBRIBIO INC (CA); DAMBAEV GEORGIY TSYRENOV) 22 November 2001 (2001-11-22)

1. The amendment performed in claim 1, namely "more than 0.5 %", instead of the originally disclosed and filed 0.05 % (in EP-priority application) has no basis in the priority document. Priority right for claim 1 is therefore questionable.
2. The claimed Ni-coated Ti powder according to claim 1 "comprises" "metallic"-Ti and "metallic"-Ni. For reasons of clarity it must be defined that the terms "metallic" are interpreted as such, i.e. excluding the participation of alloyed elements for said core or said coating. This renders the subject-matter of claim 2 redundant.
3. Relevant prior art for the claimed powder is disclosed in the documents D1 or D3:

D1: see abstract and the 3rd and 4th example on table 4, and

D3: see abstract and paragraph 12 (p.3 of the description in JP fulltext document).

In D1, the claimed powder (independently of its manufacturing method) it is used for manufacturing sintered articles (as in claim 5).

Moreover in D3 (independently of its manufacturing method) it is used in plasma spray applications.

However, none of D1 or D3 reveal or renders obvious the powder having an atomic ratio Ni:Ti of more than 0.5. The upper limit disclosed in D1 is 0.21.

To this extent, a coated powder per se, as disclosed in the above **Claims 1-4** is new (Art.33(2) PCT).

4. The use and the product according to **Claims 5-7 and 12** is also new (although SHS process is per se known). The results of examples and the obtained structure are sufficiently clear for distinguish said product.
In D4 (see the particular example of p.6) the Ti,Ni and TiNi powders are mixed in such a way to produce a mixture to be sintered as a porous SHS body where the Ti:Ni is 1 (which is very usual for prothesis porous articles). Homogenous porosity is the aim of D4.

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The SHS method of the invention is also directed to homogenous porosity and to even surface morphology (see example and comparison in the application).

D4 does not hint the use of coated powders. The use of such powders or mixture of powders in SHS, according to **claim 6** is not comprised in the cited prior art.

5. **Claim 8** is directed to the manufacturing method of the claimed powder.

D2 does not exclude the process of manufacturing a Ni-coated Ti powder by this known process (see D2, col.2, l.17 and l.34).

Since this method is suitable for the "pair" Ni-Ti, the skilled person would seriously contemplate to use the method of D2 in order to manufacture Ni-coated Ti powders as those disclosed in either D1 or D3.

Nevertheless, the claimed method of claim 8 is not sufficiently disclosed.

The following features are broadly claimed and put a burden to the skilled person to realize it (**Art.5 PCT**):

- suitable quantities are unpredictable in order to obtain the near 1:1 ratio;
- Nisalt bearing solution (salt, concentration, solvent?)
- quantity or other technical features of NH_4OH .

The subject matter of claim 8 is therefore, not inventive (Art.33(3) PCT).

The same is valid also for **claim 9** as dependent on cl. 8.

Mixing known powders as disclosed in **claim 10** does not per se provide an inventive activity (Art.33(3) PCT).